

# **Mid-Columbia River Reach Hourly Coordination & Outage Planning**

**A Presentation to the MRC  
by**

**Don Faulkner**

**Sr. Electrical Engr.**

**Columbia Basin Water Management  
Corps of Engineers Northwestern Division**

**April 29, 2008**



# 7 Mid-Columbia Projects

Grant, Chelan, and Douglas Counties own 5 projects  
right in the middle of the FCRPS!

BOR, COE, and BPA manage GCL and CHJ

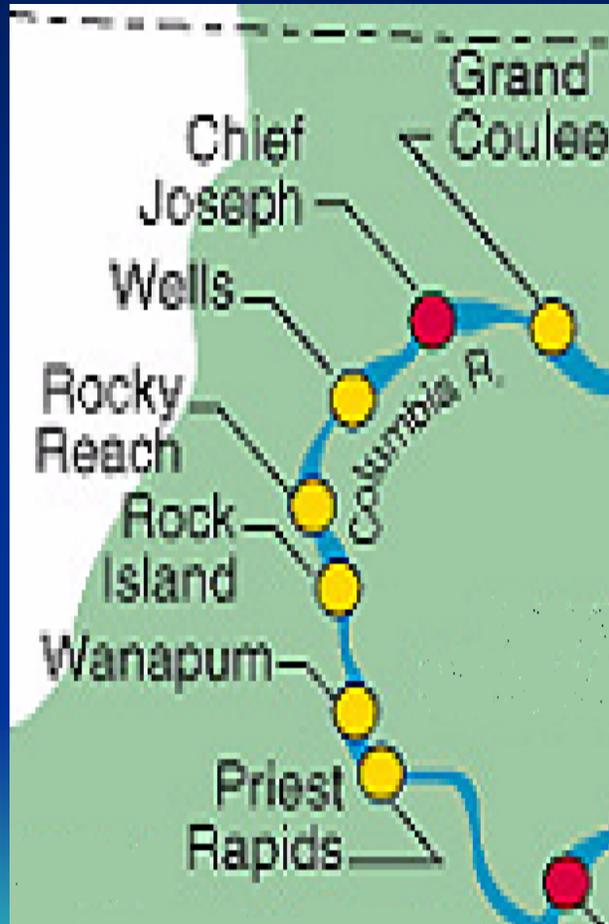


# PARTICIPANTS

- **Federal Agencies** – BPA, Corps of Engineers, Bureau of Reclamation
- **Public Utilities** – Cowlitz, EWEB, MCMN, Forest Grove, Okanogan, Seattle City Light, Tacoma Power, Kittitas
- **Tribal** – The Confederated Tribes of the Colville Reservation
  - The Colville Tribes have both cultural interests in the Mid-C region and a power interest in the Wells project.
- **Marketers** – Constellation Energy
  - Constellation Energy was the winning bidder in an open auction for a share of Grant's project as mandated by FERC in the process of re-licensing the Priest Rapids project.



# Who has interest in the non-federal projects



**Wells – Douglas PUD**  
 Portland General  
 Okanagan PUD  
 PAC

Avista  
 Colville Tribes  
 Puget Sound Energy

**Rocky Reach – Chelan PUD**  
 Portland General  
 Puget Sound Energy

Avista  
 PAC  
 Douglas

**Rock Island – Chelan County PUD**  
 Puget Sound Energy

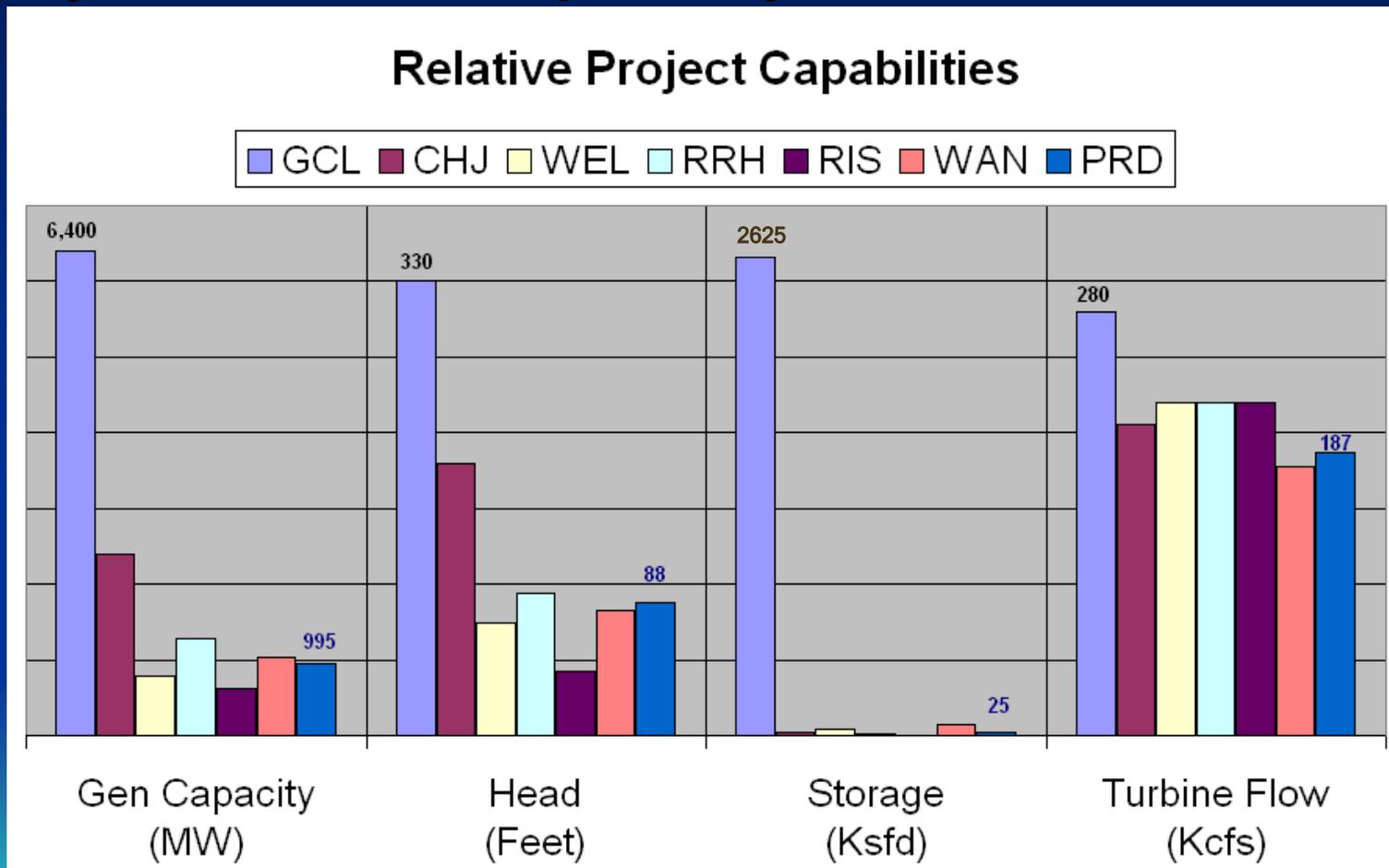
**Wanapum – Grant County**  
 Portland General  
 Puget Sound Energy

EWEB  
 PAC  
 Avista  
 Mini-Muni  
 Cowlitz  
 McMinnville

**Priest Rapids – Grant County**  
 Portland General  
 Puget Sound Energy  
 Seattle  
 Cowlitz  
 Avista

EWEB  
 PacifiCorp  
 Constellation  
 Tacoma  
 Mini-Muni  
 McMinnville

# Generating Capacity is skewed, but Hydraulic Capacity is more even.



# HISTORY

- Original agreement signed in 1972 for 1 year.
- Subsequent yearly extensions or contracts were signed through June 30, 1977.
- In July 1977 a 10-year agreement signed through June 1987.
- Another 10-year agreement signed through June 1997.
- Currently operating under a 20-year agreement through June of 2017.



# ROLES

- Power and energy production
  - Hourly Coordination to provide hydraulic coordination with the purpose of optimizing Power and Energy.
  - Federal projects are not meant to be used for non-federal load following, regulation, reserves, etc. Over time, this has become an issue for BPA and the feds.
- “Separation Logic” was implemented in the 1997 Agreement to prevent federal participation in non-federal load following and regulation needs.



# OBJECTIVES

- ❑ Optimize energy production
- ❑ Provide for ease of scheduling
- ❑ Minimize unnecessary generation changes and unit starts and stops



# BALANCING THE WATER

- Sum of all the Bias must equal zero.
- Actual generation at the 7 projects must equal the sum of all requests.
- No project owner can request more on its project than it is capable of on its own.
- No project owner is forced to give up any of its project rights or capabilities.



# OPERATING STRATEGY

- Maximizing forebay elevations (higher head)
  - Minimizing or reducing spill (no wasted energy)
- Head is a key variable in the power equation. Higher head allows for power to be generated using less water.



# OUTAGE PLANNING

- 21 Corps Dams; 14,524 MW Installed Cap., 153 generating units from 10 to 220 MW each
- Power marketed (and planned) by BPA
- Planning and Coordination:
  - ✓ Long-term: annual plan updated quarterly, submitted for each plant to Division Coordinator. Minimize conflicts with BiOp requirements.
  - ✓ Short-term (30 days): weekly calls coordination with BPA transmission, project operators, BPA power planning
  - ✓ Real-time: plant operator calls real-time power desk and transmission dispatcher

# FORCED & TRANSMISSION OUTAGE

- Unplanned outages (or “forced” Outage)

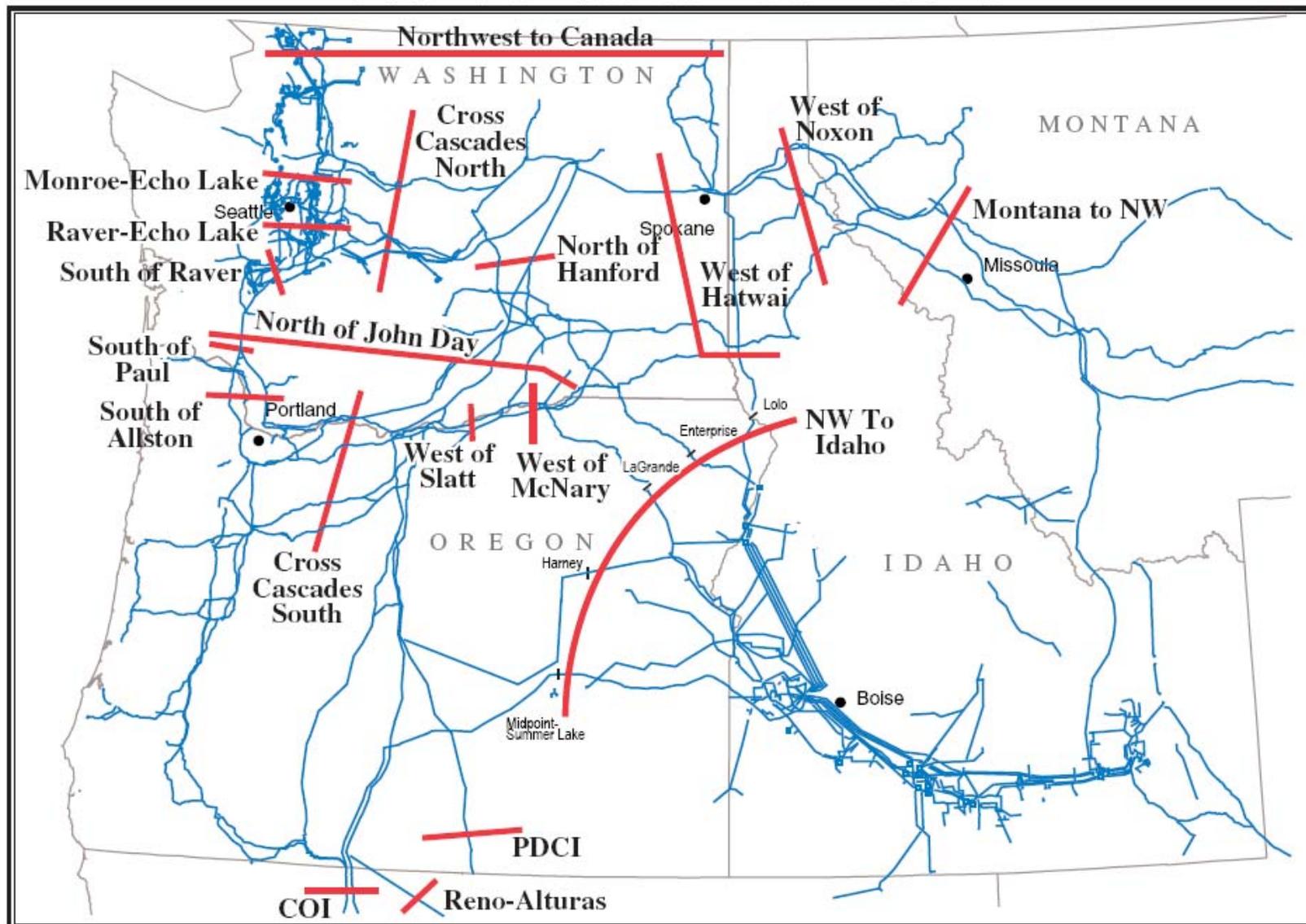
STEPS TAKEN:

- Transmission outages: when a high voltage line is taken out of service, and the outage restricts generation.

STEPS TAKEN:

- These outages are scheduled as far in advance as practicable, both the powerhouse operator and the transmission dispatch office must be aware..

# NW Constrained Paths



Questions?

